



EVALUATION & ASSESSMENT OF ROOT COVERAGE IN MULTIPLE RECESSION USING VISTA & TUNNELLING TECHNIQUE WITH AUTOLOGOUS T-PRF MEMBRANE. A REPORT OF 4 CASES.

Sameer Ahmed^{1*}, Vasudha Gupta², Shivi Khattri³, Mayur Kaushik⁴

^{1*}Reader, Institute: Swami Vivekanand Subharti University, Email-id- sameer82ahmed@gmail.com

²Post-graduate, Institute: Swami Vivekanand Subharti University,
Email-id- vasudhagupta016@gmail.com

³Reader, Institute: Swami Vivekanand Subharti University, Email-id- shivikhattri123@gmail.com

⁴Professor & Head, Institute: Swami Vivekanand Subharti University,
Email-id- drmayurkaushik@gmail.com

***Corresponding Author:** Dr. Sameer Ahmed

*Reader, Institute: Swami Vivekanand Subharti University Phone number- 9928634117,
email: sameer82ahmed@gmail.com

Abstract:

Gingival recession is defined as the exposure of the root surface by an apical shift in position of the marginal gingiva. Tunnelling technique (TUN) has been introduced as a minimally invasive and highly aesthetic treatment option for the treatment of gingival recession. To reduce the possibility of lacerating the critical marginal tissue during initial tunnel preparation. Zadeh introduced the vestibular incision subperiosteal tunnel access (VISTA) technique.

AIM: Evaluation & Assessment of root coverage in multiple recession using VISTA & Tunnelling technique with autologous T-PRF membrane.

RESULT: by the present case series it can be concluded that both the techniques proved to be equally effective in achieving recession coverage without any significant difference.

CONCLUSION: both the minimally invasive modalities have shown effective recession coverage & proves to be a predictable alternative to conventional perio-plastic procedures.

Keywords- Tunnelling, Vestibular incision sub-periosteal tunnel access (VISTA), Recession Coverage, T-PRF

INTRODUCTION:

Gingival recession is defined as the exposure of the root surface by an apical shift in position of the marginal gingiva.¹ Numerous people have generalised gingival recession without being aware of it or displaying any symptoms. Gingival recession if worsened can lead to hypersensitivity, poor aesthetics or root caries.

Over the period of time numerous modalities have been introduced for the root coverage procedures, connective tissue grafting being the gold standard. The main disadvantage of this technique is its invasiveness as it has a second surgical site as well.

Tunnelling technique (TUN) has been introduced as a minimally invasive and highly aesthetic treatment option for the treatment of gingival recession, one of the most frequent mucogingival deformities and conditions. Miller Class I & II defects in multiple teeth showed more predictable & effective outcomes in the root coverage with the tunnelling technique.

Zabalegui et al.² coined the term “tunnel” technique to describe the preparation of this multi-envelope recipient bed underlying the importance of connecting the adjacent envelopes to establish a continuous plane under partial thickness dissection. The main advantage of Tunnelling technique is the incision-free design, hence preserving the papilla. With the help of this technique, we can avoid scarring and also minimize the risk of tearing of highly fragile papilla in the aesthetic zone of the mouth.^{3,4,5} Despite many advantages this procedure is quite time taking and technique sensitive.

To reduce the possibility of lacerating the critical marginal tissue during initial tunnel preparation, some modifications that include apical incisions and a reverse flap elevation from the vestibule towards the gingival margin have been proposed. Zadeh introduced the vestibular incision subperiosteal tunnel access (VISTA) technique, characterized by a vestibular access incision followed by a full thickness tunnel extended to the marginal gingiva and interproximal papilla.⁶

Various materials can be placed in the pouch created in these techniques and one of such materials is Platelet Rich Fibrin. Platelet concentrates are way ahead of other growth biomaterials due to constant release of growth factors which are crucial for stimulation of adjacent progenitor cells, leading to periodontal regeneration and tissue healing. Tunali et al⁷ introduced Titanium prepared PRF. Titanium is passivated into an oxide layer within itself, which activates platelets and forms a thicker fibrin clot. In addition to above benefits T-PRF also has longer resorption time, better hemocompatibility and does not cause contamination of silica particles as seen in L-PRF.⁸

In this case series we will be presenting the cases of root coverage done with the help of both tunnelling and VISTA technique with T-PRF inserted in the pouch.

CASE REPORT:

CASE 1: A patient reported to the Department of Periodontology, Subharti Dental College & Hospital, Meerut with the chief complaint of receding gums and hypersensitivity. On intra-oral examination multiple Miller Class-I recession defects were present in respect to lower anteriors. Tunnelling technique in along with autologous T-PRF was taken as the treatment of choice for the Root coverage.

The area was anaesthetised using 2% lignocaine followed by a crevicular incision sparing the interdental papillae was given using a 15-no blade. A tunnel was created irt #41,#42,#31,#32 using Tunnelling knives & an autologous T-PRF was prepared using Titanium tubes centrifuged at 3500 RPM for 15 min which was inserted into the tunnel followed by advancing & securing the flap by composite button sutures.

Post-operative instructions & medications were given to the patient comprising of 625mg Amoxicillin + Clavulanic acid Tab TDS for 5 days, Serratiopeptidase Tab BD for 5days followed by 0.2% chlorhexidine mouth rinse for 15 days. Patient was also advised to abstain from any kind of brushing at the surgical site for 2 weeks. Patient was recalled after 15 days for suture removal followed by re-evaluation & re-assessment & complete root coverage was achieved after 3 months post-operatively.



Fig.1- Pre-operative view #31,32,41,42, **Fig.2-** Tunnel formation, **Fig.3-** T-PRF procurement, **Fig.4-** T-PRF placed in the tunnel, **Fig.5-** Sutures placed, **Fig.6-** 3-months post-operative view

CASE 2: A Male Patient age-35 years reported to the OPD of Department of Periodontology, Subharti Dental College & Hospital, Meerut with the chief complain of receding gums. On intra-oral examination multiple Miller Class-II recession were present irt #43,#42,#41,#31,#32,#33. VISTA approach in along with autologous T-PRF was undertaken. The area was anaesthetised using 2% Lignocaine followed by vestibular access incision followed by a full thickness tunnel extended to the marginal gingiva and interproximal papilla using 15-no blade. T-PRF was procured using Tunali et al protocol and was placed inside the tunnel created and finally the flap was advanced and secured with composite button sutures.

Post-operative instructions were given to the patient. Patient was recalled after 15 days for suture removal followed by re-evaluation & re-assessment after 3months which showed good amount of root coverage.



Fig.7- Pre-operative view, **Fig.8-** T-PRF placement in the tunnel, **Fig.9-** Sutures placed, **Fig.10-** 3-months post-operative view

CASE 3: Root coverage using Tunnelling approach along with autologous T-PRF



Fig. 11



Fig. 12

CASE 4: Root coverage using VISTA along with autologous T-PRF



Fig. 13



Fig. 14

Fig.11- Pre-operative view irt #21,#22,#23,#24, Fig.12- 3-months post-operative view, Fig.13- Pre-operative view irt #23,#24,#25, Fig.14- 3-months post-operative view

RESULT:

The recession defect in all the cases were covered to a good extent clinically, although any difference in the result between both the Tunnelling & VISTA technique were not evident. The use of T-PRF provided good amount of tissue thickness, improving the gingival biotype and accelerated the healing time in all the patients. However, long term randomised controlled clinical trials are necessary to effectively compare the clinical outcome and difference between the use of these two techniques for recession coverage

DISCUSSION:

Periodontal Plastic Surgeries can be defined as surgical procedures performed to prevent or correct anatomic, developmental, traumatic or disease-induced defects of the gingiva, alveolar mucosa or bone.¹³

The clinical goal of root coverage procedures is to achieve complete root coverage with satisfactory aesthetic results. The surgical principles of plastic surgery remain focused on preserving vascularity, replacing like tissue with like tissue, respecting anatomic zones, and fostering wound healing by minimizing tissue trauma.⁹ This is where the tunnelling and VISTA technique comes in to the picture, for their minimally invasive nature.

The VISTA approach begins with a vestibular access incision. The location of the access incision depends on the sites being treated. The incision is made through the periosteum to elevate a

subperiosteal tunnel, exposing the facial osseous plate as well as root dehiscence. According to Garg et al VISTA alone is a convenient technique for treatment of Class I MRDs. Addition of PRF-membrane for Class III recession defects give better outcome in term of reduction of recession depth and gain in CAL.¹⁰

In cases where T-PRF is used, the root coverage is based on the property of growth factors found in the platelet of gel rich fibrin,¹¹ stimulating the angiogenesis, immunity, and epithelial proliferation through the formation of the initial fibrin clot. The T-PRF membranes benefit the regeneration of the bone stimulating the stabilization of the initial fibrin clot and accelerate the healing process. Furthermore, using the L-PRF, the need of a donor site was eliminated, making this technique less invasive, bringing about the reduction of the oedema formation.¹²

CONCLUSION:

It can be concluded from these case reports that both Tunnelling & VISTA technique are minimally invasive for the patient and provide standard result in recession coverage. There was no significant difference visible in the result between both the techniques. However, to make a final conclusion more evidence is required by conducting long term clinical trials.

Acknowledgement- I would like to acknowledge everyone from my department for their support and motivation.

REFERENCES:

1. **Gupta V, Joshi S, Saleem M, Kaushik M.** An isolated Miller Class-II Recession Defect Treated Using Lateral Pedicle Graft- A Case Report. *Int. J. Health Sci.* 2023;13(6):117-119.
2. **Zabalegui I, Sicilia A, Cambra J, Gil J, Sanz M.** Treatment of multiple adjacent gingival recessions with the tunnel subepithelial connective tissue graft: a clinical report. *Int J Periodontics Restorative Dent.* 1999
3. **Zuhr O, Rebele SF, Cheung SL, Hurzeler MB.** Research Group on Oral Soft Tissue B, Wound H. Surgery without papilla incision: tunneling flap procedures in plastic periodontal and implant surgery. *Periodontol 2000.* 2018;77(1):123–49.
4. **Raetzke PB.** Covering localized areas of root exposure employing the “envelope” technique. *J Periodontol.* 1985;56(7):397–402
5. **Zuhr O, Fickl S, Wachtel H, Bolz W, Hurzeler MB.** Covering of gingival recessions with a modified microsurgical tunnel technique: case report. *Int J Periodontics Restorative Dent.* 2007;27(5):457– 63.
6. **Zadeh HH.** Minimally invasive treatment of maxillary anterior gingival recession defects by vestibular incision subperiosteal tunnel access and platelet-derived growth factor BB. *Int J Periodontics Restorative Dent.* 2011;31(6):653–660
7. **Tunali M, Ozdemir H, Kucukodaci Z, Akman S, Firath E.** In vivo evaluation of T-PRF. *Br J Oral Maxillofac Surg* 2013;52:438-43.
8. **Ahmed S, Yadav S, Agarwal M, Kaushik M.** Promenade to enhanced aesthetics: Gingival recession coverage in combination of modified coronally advanced tunnel technique with T-PRF, A case report. *J. Pharm. Negat* 2022;13:674-678.
9. **Deepak M, Kalaskar, Peter E, Butler, Shadi Ghali.** Textbook of plastic & reconstructive surgery 2016.
10. **Garg S, Arora SA, Chhina S, Singh P.** Multiple Gingival Recession Coverage Treated with Vestibular Incision Subperiosteal Tunnel Access Approach with or without Platelet-Rich Fibrin - A Case Series. *Contemp Clin Dent.* 2017 Jul-Sep;8(3):464-468
11. **Z. Hu, S. A. F. Peel, S. K. C. Ho, G. K. B. Sándor, and C. M. L. Clokie.** “Platelet-rich plasma induces mRNA expression of VEGF and PDGF in rat bone marrow stromal cell

differentiation,” *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology and Endodontology*, vol. 107, no. 1, pp. 43–48, 2009.

12. **Pazmiño V, Rodas M, Cáceres C, Duarte G, Azuaga M, Paula B et al** Clinical Comparison of the Subepithelial Connective Tissue versus Platelet-Rich Fibrin for the Multiple Gingival Recession Coverage on Anterior Teeth Using the Tunneling Technique. *Case reports in Dentistry* 2017;7:1-6.